Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

October 22, 2001

CERTIFIED RETURN RECEIPT
7000 0520 0023 0993 8365

Paul Spor
Tintic Utah Metals
15988 Silver Pass Road
P. O. Box 51
Eureka, Utah 84628

Re: Initial Review of Dry Stack Tailings Amendment, Tintic Utah Metals, LLC, Apex/Burgin Mine, M/049/009, Utah County, Utah

Dear Mr. Spor:

The Division has completed a review of your amendment to permit M/049/009 wherein you propose to use a dry stack tailings system rather than conventional wet tailings disposal. The Division received this proposal August 14, 2001. After reviewing the information, the Division has the following comments which will need to be addressed before tentative approval may be granted.

The comments are listed below under the applicable Minerals Rule heading. Please format your response in a similar fashion. **Please address only the items requested in this review response or you may send replacement pages of the original notice using redline and strikeout, so we can see what changes have been made. After the notice is accepted, we will then ask that you send us two copies of the complete and corrected plan. Upon finalization of the permit, we will return one copy stamped "approved" for your records.** Please provide a response to this review within 30 days or no later than November 26, 2001.

The Division will suspend further review of the amendment until your response to this letter is received. If you have any questions in this regard please contact me, Paul Baker, Tom Munson or Doug Jensen of the Minerals Staff. If you wish to arrange a meeting to sit down and discuss this review, please contact us at your earliest convenience. Thank you for your cooperation in completing this permitting action.

Sincerely,

D. Wayne Hedberg

D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb
Attachment: Review

REVIEW OF NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

Tintic Utah Metals, LLC
Apex/Burgin Mine

M/049/009

R647-4-105 - Maps, Drawings & Photographs

105.1 Topographic base map, boundaries, pre-act disturbance
A request has been made for the release and reassignment of areas within the mine site. Please furnish maps indicating the location and outlines of all the areas noted on Tables A & B of the plan. Note the areas that have been proposed to be dropped, reassigned or expanded. (DJ)

105.2 Surface facilities map
Changes to the Tintic (Burgin) Mill were noted during the Division's September 18, 2001 tour. Some of these changes are also shown on Figure 11 of this plan. An amendment should have been filed with the Division delineating all modifications that have been made or are being planned as a part of the present plan of operations. Drawings and as-built details of the mill modifications are required to assess whether the present bond amounts for the mill are sufficient.

The planned production of 50,000 tons/year of mine development material will result in the expansion of waste dumps surrounding the production shafts. Maps of these areas will need to be submitted to indicate the projected expansion. (DJ)

105.4 Photographs
Please show the outline of the area to be impacted by the Dry Stack Tailings Area on Figure 3 (aerial photo) included in the plan. (DJ)

R647-4-106 - Operation Plan

106.1 Minerals mined
In Section 4, it is stated that the ore mined from other mines in the area will be processed in the mill over time. Depending on the tonnages and mineralogy of these materials processed, the predicted benign nature of the dry stack tailings pile could be affected by these additional tonnages. Please provide supplemental comment and supporting information to address this concern. (DJ)

106.5 Existing soil types, location, amount
Information about soils in the proposed expansion area is adequate for developing the reclamation plan. Depth to bedrock varies from about three inches to about six feet. In the analyses done, there were no serious limitations in either physical or chemical characteristics. Some soils have high clay and coarse fragment contents, but these levels are not extreme. The application indicates coarse fragment content values of 35-60 percent are poor to unacceptable, but this rating is for agricultural soils. To an extent, rock benefits rooting and erosion control characteristics in wildland soils, so these values should not be limiting. (PBB)

106.6 Plan for protecting & redepositing soils

The plan for salvaging, storing, and protecting soils is discussed under regulation R647-4-107.5. (PBB)

106.7 Existing vegetation - species and amount

The Division needs a more detailed analysis of the vegetation community proposed to be disturbed. The vegetation inventory consists of a rough estimate of the amount of understory cover and a statement that the existing vegetation community is pinyon/juniper. The baseline vegetation information should include measurements of cover by species in the understory and overstory combined. After reclamation, the amount of cover is required to be within 70 percent of the cover that existed before mining. Although the area will not be restored to a pinyon/juniper community, it should be possible to obtain the amount of cover that existed before mining. The Division would be willing to accept a plan to compare the reclaimed area to a different nearby vegetation community, such as sage/grass. (PBB)

R647-4-107 - Operation Practices

107.3 Erosion control & sediment control

The bypass diversion ditch which carries runoff around the dry stack tailings needs to be inspected after every major storm and maintained as needed. Please provide this maintenance commitment in the plan. During the recent inspection it was noted that the soil in which the ditch was built was erosive and vegetation was actively growing in the ditch. The reason for the maintenance plan stems from this inspection and what was observed.

It was also noted that a ditch comes into the sediment pond but does not show on any maps. Please provide any information on this ditch and how it is incorporated in the design capacity of the pond. (TM)

107.5 Suitable soils removed & stored

The operator needs to revise the soil salvage, storage, and reclamation plans. It appears much more soil will be salvaged, and thus be available for reclamation, than is shown in the reclamation plan. Table 4.2 of the Engineering Design Memo appendix says 54,000 cubic yards of soil will be excavated from within the footprint of the facility, and 25,000 cubic yards will be used for reclamation cover. Section 4.5 of this appendix indicates 1700 cubic yards of soil will be needed for the sedimentation pond, and this leaves an excess of 27,300 cubic yards of excavated soil. If this soil is used in reclamation, it would allow an extra 1.1 feet of material to be placed over the tailings. The application does not specify any other use for this material.

Although the physical and chemical analyses of the tailings indicate no serious limitations, the Division does not expect the tailings to provide a good rooting medium. About 68 percent of the material is silt-sized, 23 percent fine or very fine sand, and 9 percent clay. The lack of coarser particles will inhibit root development, and the tailings are likely to have few plant nutrients and little or no biological activity. Applying two

feet of soil would greatly benefit the vegetation and may be necessary for achieving adequate vegetation cover.

Topsoil will not be salvaged from the entire area at first. Instead, the only soil to be salvaged and stored will be from the area of the first lift. Because additional soil is available; however, the operator needs to show where this additional soil will be stored. It may be possible to place much of this material on the planned stockpile, but the application needs to show how all of the stockpiled topsoil will be stored.

The operator needs to modify the plan for seeding the soil stockpiles. The application indicates the soil stockpiles will be fertilized, roughened to incorporate the fertilizer, and the Table 2 seed mix will be broadcast. The seedbed will then be roughened a second time to incorporate the seed. Soils on the access road will be salvaged and windrowed along the road outslope, and this soil will be stabilized using the same methods.

If seed is broadcast soon after the soil is stockpiled, it should not be necessary to roughen the surface a second time. "Light roughening" could bury the seed too deeply and may lead to a smoother surface. Raking or something similar would allow better seed/soil contact, but it is more important to leave a rough surface. The application should be changed accordingly.

Permanent redistribution, surface preparation, and revegetation are discussed in the Reclamation Practices portion of this document. (PBB)

107.6 Concurrent reclamation

The amendment application indicates the tailings pile will be reclaimed in stages as tailings are added. This plan complies with the requirements for concurrent reclamation. (PBB)

R647-4-109 - Impact Assessment

109.2 Impacts to threatened & endangered wildlife/habitat

With the exception of bald eagles that might occasionally fly over the area in the winter, the area contains no habitat for threatened or endangered species. (PBB)

R647-4-110 - Reclamation Plan

110.5 Revegetation planting program

The application does not contain information about species growing in the area (other than pinyon and juniper), but based on knowledge of similar sites, the species in the seed mixes appear to be adapted to the area. Shrubs should be eliminated from the interim seed mixture shown in Table 2, at least when this mix is planted on the pond embankment. The operator intends to use this mix on the sediment pond and on the topsoil stockpile, but shrubs can create stability problems on a pond embankment. (PBB)

R647-4-111 - Reclamation Practices

111.5 Land capable of post mining land use

The current land uses are mineral exploration, wildlife habitat, and open space, and the operator proposes to restore these land uses. Reclamation of this site to these uses is feasible although, using the proposed seed mix, the vegetation community would be changed from pinyon/juniper to a grass shrub community. With other pinyon/juniper habitat in the area, this change would benefit most wildlife species. (PBB)

111.12 Topsoil redistribution

The operator proposes the following resoiling and revegetation sequence

1. Grade and rip the tailings prior to applying soil.
2. Apply an average of one foot of soil and disc the seedbed 4-6 inches deep before fertilizing and seeding. Soil applied to outslopes will be left rough following grading. After discing, take soil samples for analysis to determine fertilizer rates. The seedbed of nearly level areas will be roughened to incorporate the fertilizer.
3. Broadcast the seed mix shown in Table 3 and lightly roughen the area to cover the seed.
4. Mulch with 1 to 1.5 tons per acre of tacked hydromulch or with 2 tons per acre of crimped, netted, or tackified straw.

Tables 4 and 5 show preferred and alternate revegetation schedules. According to the preferred schedule, soil redistribution could be done between late July and mid-September with seeding taking place in late September through late October. The alternate schedule shows ripping and soiling between late January and early March with seeding being done in late March through early May.

As discussed under the soils operation plan, it appears about two feet of soil is available for redistribution on the tailings pile.

With proper sequencing, the operator could eliminate some steps in the reclamation process. The soils should be ripped, and if this is done adequately, it may not be necessary to rip the tailings prior to applying soil. The soils could be tested for fertilizer requirements either before or after distribution and the fertilizer applied immediately after they are redistributed. The soils need to be ripped approximately parallel to the contour to roughen the soils, to decrease compaction, and to lessen the sharp boundary between the tailings and the soil. This would also mix the fertilizer with the soil. To negate the need to rip the tailings, the soil should be ripped to a minimum depth of three feet with ripper shanks spaced no more than three feet apart. If it is not practical to rip this deeply or with this spacing, ripping would need to be done in two separate operations.

It is probably not necessary to disc after ripping, and it may be detrimental. Discing is likely to reduce roughening which the Division considers a very effective treatment.

The application says the surface will be lightly roughened to cover seed, but if the seed is broadcast on freshly-applied soil with a rough surface, there should be no need to cover the seed. "Light roughening," depending on how it is done, could decrease the roughness.

Spring seeding is not likely to be successful in this area. If it is necessary to topsoil an area in the spring, it would be better to plant a cover crop, such as a winter grain, in the spring and plant the permanent seed mixture the next fall.

The application includes results for meteoric water testing on a tailings sample, but it does not say exactly how the sample was obtained. Test results do not indicate any chemical problems with this material, but the Division is unsure how representative of the tailings this one sample is. In addition, the application indicates it is expected that ore from other mines in the district will be processed over time, and while the Trixie ore may be representative of other ore in the district, it is impossible at this time to know the exact nature of tailings from other mines or from newly-mined areas in the Trixie Mine area.

The operator needs to commit to future sampling of the tailings and possibly the development rock to ensure there would be no problems either for revegetation or for water quality. At a minimum, these samples should be taken every six months during operations and whenever there is a change in operations that might affect the nature of the tailings, such as processing ore from another facility. (PBB)

R647-4-112 - Variance

The operator has not requested a variance from soil salvage or revegetation requirements. (PBB)

R647-4-113 – Surety

A Blue Rock Excavating, Inc. rate schedule is referenced as a basis for calculating the surety for the dry stack operation. A certified signed copy of a bid from this company indicating equipment and support costs for reclamation of the tailings area will be necessary.

The surety amount included with this permit should be calculated for disturbances that will be created during a five-year period. Only the areas covered by the bond calculated for this amendment can be disturbed. Any further disturbances will require an additional amendment to the plan. (DJ)

The present escalation factor used by the Division is 3.12%.